



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

December 11, 2013

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-9502124, issued to NOBLE ENERGY, INC., is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.



James Martin
Chief

Operator's Well No: SHR3BHS
Farm Name: NOBLE ENERGY, INC
API Well Number: 47-9502124
Permit Type: Horizontal 6A Well
Date Issued: 12/11/2013

Promoting a healthy environment.

PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACOE). Through this permit, you are hereby being advised to consult with USACOE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

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STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: Noble Energy, Inc. 494501907 095 Centerville Shirley
Operator ID County District Quadrangle

2) Operator's Well Number: SHR3BHS Well Pad Name: SHR3

3 Elevation, current ground: 756 Elevation, proposed post-construction: 754

4) Well Type: (a) Gas ☒ Oil ☐ Underground Storage ☐
Other ☐
(b) If Gas: Shallow ☒ Deep ☐
Horizontal ☒

5) Existing Pad? Yes or No: No

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):

Target-Marcellus, Depth- 6363-6424; Thickness- 61"; Pressure- 4240 # psi

7) Proposed Total Vertical Depth: 6523'

8) Formation at Total Vertical Depth: Onondaga (99' into the Onondaga)

9) Proposed Total Measured Depth: 7300'

10) Approximate Fresh Water Strata Depths: 64, 94, 342,

11) Method to Determine Fresh Water Depth: Closest well & Seneca Technology data base

12) Approximate Saltwater Depths: 1244'

13) Approximate Coal Seam Depths: no coal

14) Approximate Depth to Possible Void (coal mine, karst, other): none

15) Does proposed well location contain coal seams directly overlying or adjacent to an active mine? If so, indicate name and depth of mine: no

16) Describe proposed well work: Drill the vertical depth to approx. 99' but not more than 100' into the Onondaga, plug back with a solid cement plug to the base of the Marcellus at an estimated total vertical depth of approximately 6424feet. Drill Horizontal leg - stimulate and produce the Marcellus Formation.
Should we encounter a unanticipated void we will install a minimum of 20' of casing below the void but not more than 50' set a basket and grout to surface.

17) Describe fracturing/stimulating methods in detail:

The stimulation will be multiple stages divided over the lateral length of the well. Stage spacing is dependent upon engineering design. Slickwater fracturing technique will be utilized on each stage using sand, water, and chemicals.

18) Total area to be disturbed, including roads, stockpile area, pits, etc. (acres): 8.43

19) Area to be disturbed for well pad only, less access road (acres): 8.0

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20)

CASING AND TUBING PROGRAM

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TYPE	Size	New or Used	Grade	Weight per ft.	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill -up (Cu. Ft.)
Conductor	20"	N	LS	94	60'	60'	CTS
Fresh Water	13 3/8"	N	J-55	54.5	442'	442'	CTS
Coal							
Intermediate	9 5/8"	N	J-55	36.0	2754' or 100' below the Big Injun	2574' or 100' Below the Big Injun	CTS
Production	5 1/2"	N	P-110	20.0	7300'	7300'	200' above 9.625 shoe
Tubing							
Liners							

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield
Conductor	20"	24"	.438	2730	Type 1	1.2
Fresh Water	13 3/8"	17 1/2"	.380	2730	Type 1	1.18
Coal						
Intermediate	9 5/8"	12 3/8"	.352	3520	Class A	1.19
Production	5 1/2"	8.75"	.361	12,640	Class A	1.27
Tubing						
Liners						

PACKERS

Kind:				
Sizes:				
Depths Set:				

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21) Describe centralizer placement for each casing string.

Conductor - No centralizers used. Fresh Water & Coal -

Bow spring centralizers on first 2 joints then every third joint to 100 feet from surface. Intermediate - Bow spring centralizers every third joint to 100' from surface.

Production - Rigid bow spring every third joint from KOP to TOC, rigid bow spring every joint to KOP.

22) Describe all cement additives associated with each cement type.

Conductor - 1.15% CaCl₂.

Fresh Water - 1.15% CaCl₂. Coal - 1.15% CaCl₂, 0.6% Gas migration control additive, 0.5% fluid loss additive, 0.4% Salt tolerant dispersant, and 0.3% defoamer. Intermediate - 10.0% BWOW NaCl, 0.2% BWOB Anti-foam, 0.3% BWOW Dispersant, 0.4% BWOB Cement retarder. Production: 2.6% Cement extender, 0.7% Fluid Loss additive, 0.5% high temperature retarder, 0.2% friction reducer.

23) Proposed borehole conditioning procedures.

Conductor - The hole is drilled w/ air and casing is run in air. Apart from insuring

the hole is clean via air circulation at TD, there are no other conditioning procedures. Fresh Water - The hole is drilled w/air and casing is run in air. Once casing is on bottom, the hole is filled w/ KCl water and a minimum of one hole volume is circulated prior to pumping cement. Coal - The hole is drilled w/air and casing is run in air. Once casing is at setting depth, the hole is filled w/ KCl water and a minimum of one hole volume is circulated prior to pumping cement. Intermediate - Once surface casing is set and cemented Intermediate hole is drilled either on air or SOBMM and filled w/ KCl water once filled w/ KCl water once drilled to TD. The well is conditioned with KCl circulation prior to running casing. Once casing is at setting depth, the well is circulated a minimum of one hole volume prior to pumping cement. Production - The hole is drilled with synthetic oil base mud and once at TD

the hole is circulated at a drilling pump rate for at least three hours. Once the torque and drag trends indicate the hole is clean the drilling BHA is pulled and casing is run. Once on bottom w/ casing the hole is circulated a minimum of one hole volume prior to pumping cement.

*Note: Attach additional sheets as needed.

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DRILLING WELL PLAN
SHRL-3B-HS (Marcellus HZ)
Macellus Shale Horizontal
Tyler County, WV

Ground Elevation		756'		SHRL-3B SHL (Lat/Long)		(335746.02N, 1623337.23E) (NAD27)						
Azm		160°		SHRL-3B LP (Lat/Long)		(335346.04N, 1623578.22E) (NAD27)						
WELLBORE DIAGRAM		160°		SHRL-3B BHL (Lat/Long)		(334840.44N, 1623762.24E) (NAD27)						
WELLBORE DIAGRAM		HOLE	CASING	GEOLOGY	MD	TVD	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS	
		24	20" 94#	Conductor	60	60	AIR	To Surface	N/A	Ensure the hole is clean at TD.	Stabilize surface fill/soil. Conductor casing = 0.438" wall thickness Burst=2730psi	
		17 1/2	13-3/8" 54.5# J-55 BTC					AIR	15.6 ppg Type 1 + 2% CaCl, 0.25# Lost Circ 30% Excess Yield = 1.18	Bow Spring on first 2 joints then every third joint to 100' form surface	Fill with KCl water once drilled to TD. Once casing is at setting depth, circulate a minimum of one hole volume prior to pumping cement.	Intermediate casing = 0.380" wall thickness Burst=2730 psi
				Int. Casing	442	442						
		12 3/8	9-5/8" 36# J-55 LTC	Top Devonian Shale	2367	2367	AIR	15.6ppg Class A +0.4% Ret, 0.15% Disp, 0.2% AntiFoam, 0.125#/sk Lost Circ 20% Excess Yield=1.19 To Surface	Bow spring centralizers every third joint to 100' feet from surface.	Fill with KCl water once drilled to TD. Once casing is at setting depth, circulate a minimum of one hole volume prior to pumping cement.	Casing to be ran 250' below the 5th Sand. Intermediate casing = 0.352" wall thickness Burst=3520 psi	
				Venango	2548	2548						
				Fifth Sand	2693	2693						
				Int. Casing	2754	2754						
		8.75" Vertical	5-1/2" 20# HCP-110 TXP BTC	Warren Sand	3183	3183	8.0ppg - 9.0ppg SOBM	14.8ppg Class A 25:75:0 System +2.6% Cement extender, 0.7% Fluid Loss additive, 0.45% high temp retarder, 0.2% friction reducer	Rigid Bow Spring every third joint from KOP to TOC	Once at TD, circulate at max allowable pump rate for at least 6x bottoms up. Once on bottom with casing, circulate a minimum of one hole volume prior to pumping cement.	Production casing = 0.361" wall thickness Burst=12640 psi Note:Actual centralizer schedules may be changed due to hole conditions	
		Benson			4841	12.0ppg-12.5ppg SOBM	Rigid Bow Spring every joint to KOP					
		Alexander			5089							
		Tully Limestone			6340							
		8.75" Curve		Hamilton		6344	12.0ppg-12.5ppg SOBM	10% Excess Yield=1.27				
	Marcellus			6363								
8.75" - 8.5" Lateral		TD	7300	6414		TOC >= 200' above 9.625" shoe						
		Onondaga		6424								
LP @ 6414' TVD / 6762' MD		8.75 / 8.5 Hole - Cemented Long String 5-1/2" 20# HCP-110 TXP BTC		+/-538' ft Lateral		TD @ +/-6414' TVD +/-7300' MD						
				X=centralizers								

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Office of Oil and Gas
WV Dept. of Environmental Protection

95-02124

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WV Department of
Environmental ProtectionWW-9
(5/13)Page _____ of _____
API Number 47-095
Operator's Well No. SHR3BHSSTATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Noble Energy, Inc. OP Code 494501907Watershed (HUC 10) Middle Island Creek Quadrangle ShirleyElevation 756 County Tyler District CentervilleDo you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes X No _____Will a pit be used for drill cuttings? Yes _____ No XIf so, please describe anticipated pit waste: closed loop-no utilization of a pitWill a synthetic liner be used in the pit? Yes _____ No X If so, what ml.? _____

Proposed Disposal Method For Treated Pit Wastes:

- _____ Land Application
- _____ Underground Injection (UIC Permit Number _____)
- _____ ☒ Reuse (at API Number at next anticipated well)
- _____ ☒ Off Site Disposal (Supply form WW-9 for disposal location)
- _____ Other (Explain _____)

Will closed loop system be used? yesDrilling medium anticipated for this well? Air, freshwater, oil based, etc. Air/water based mud through intermediate string then SOBM-If oil based, what type? Synthetic, petroleum, etc. SyntheticAdditives to be used in drilling medium? Please see attached list

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. _____

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) _____

-Landfill or offsite name/permit number? Please see attached list

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature Dee SwigerCompany Official (Typed Name) Dee SwigerCompany Official Title Regulatory AnalystSubscribed and sworn before me this 22nd day of July, 20 13Laura L. Adkins Notary PublicMy commission expires November 23, 2015

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Form WW-9

Operator's Well No. SHR3BHSNoble Energy, Inc.Proposed Revegetation Treatment: Acres Disturbed 8.43 Prevegetation pH 6.0Lime 2 to 3 Tons/acre or to correct to pH _____Fertilizer (10-20-20 or equivalent) 500 lbs/acre (500 lbs minimum)Mulch Hay or Straw at 2 Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	Ladino Clover	5

Attach:

Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: David [Signature]Comments: pressed & mulch all cut areas - maintain all
C&S through processTitle: Oil and Gas InspectorDate: 7-16-13

Field Reviewed?

☒ Yes☐ No

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Office of Oil and Gas
WV Dept. of Environmental Protection

Site Water/Cuttings Disposal

Cuttings

Haul off Company:

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Eap Industries, Inc. DOT # 0876278
1575 Smith Twp State Rd. Atlasburg PA 15004
1-888-294-5227

Disposal Locations:

Apex Environmental, LLC Permit # 06-08438
11 County Road 78
Amsterdam, OH 43903
740-543-4389

Westmoreland Waste, LLC Permit # 100277
111 Conner Lane
Belle Vernon, PA 15012
724-929-7694

Sycamore Landfill (Allied Waste) R30-07900105-2010
4301 Sycamore Ridge Road
Hurricane, WV 25526
304-562-2611

Water

Haul off Company:

Dynamic Structures, Clear Creek DOT # 720485
3790 State Route 7
New Waterford, OH 44445
330-892-0164

Disposal Location:

Solidification
Waste Management, Arden Landfill Permit # 100172
200 Rangos Lane
Washington, PA 15301
724-225-1589

Solidification/Incineration
Soil Remediation, Inc. Permit # 02-20753
6065 Arrel-Smith Road
Lowelville, OH 44436
330-536-6825

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Office of Oil and Gas
WV Dept. of Environmental Protection



Water Management Plan: Secondary Water Sources



WMP-01505

API/ID Number

047-095-02124

Operator:

Noble Energy, Inc

SHR3BHS

Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

Multi-site impoundment

Source ID:	26994	Source Name	SHR 3 Centralized Freshwater Impoundment		Source start date:	4/15/2014
					Source end date:	4/15/2015
Source Lat:	39.415053	Source Long:	-80.834425	County	Tyler	
Max. Daily Purchase (gal)		Total Volume from Source (gal):	13,500,000			
DEP Comments:	095-FWC-00003					

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-1177

APPROVED OCT 11 2013

WMP-01505

API/ID Number

047-095-02124

Operator:

Noble Energy, Inc

SHR3BHS

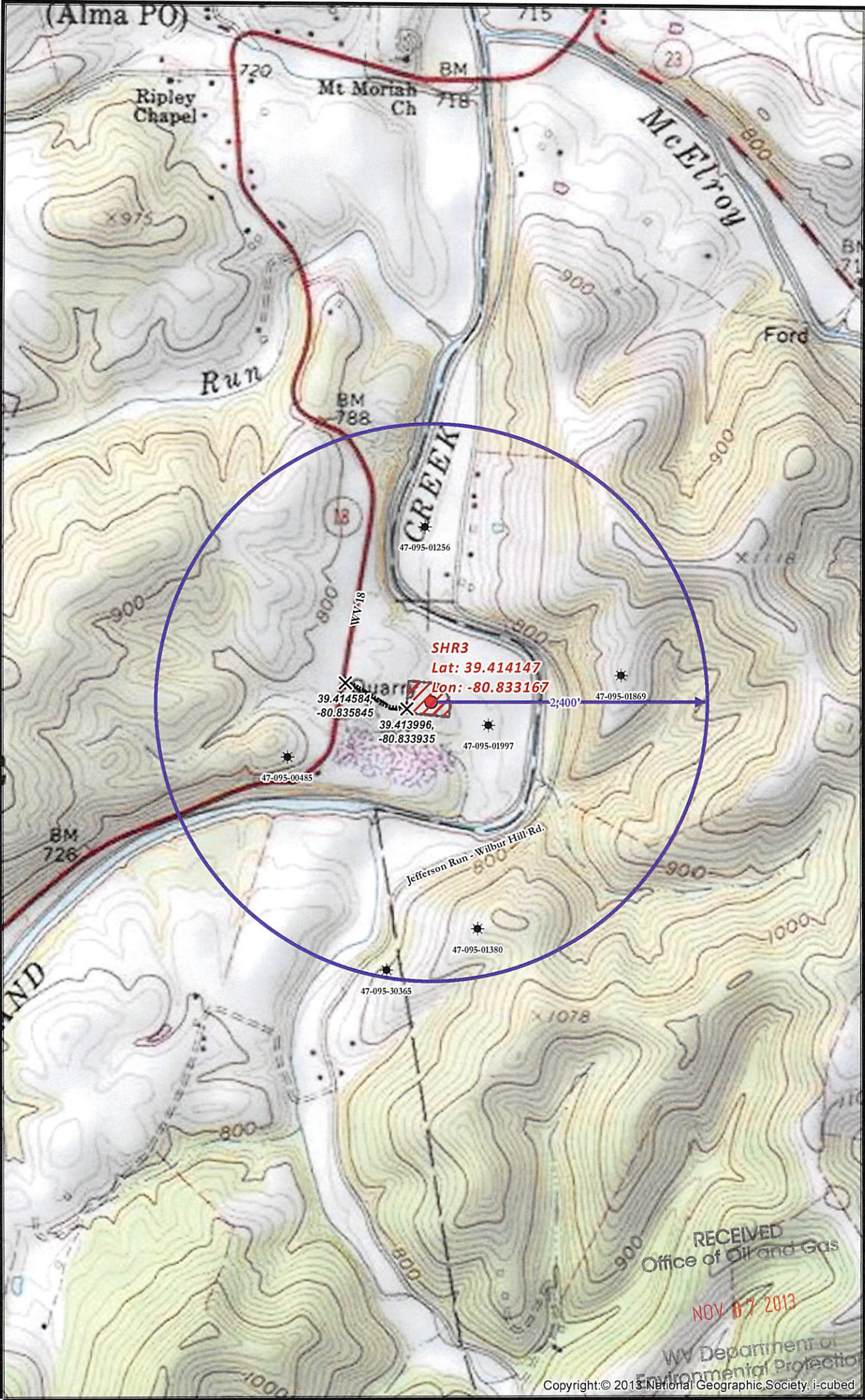
Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

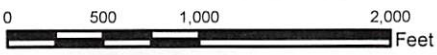
Recycled Frac Water

Source ID:	26995	Source Name	Various		Source start date:	4/15/2014
					Source end date:	4/15/2015
Source Lat:		Source Long:		County		
Max. Daily Purchase (gal)		Total Volume from Source (gal):	13,500,000			
DEP Comments:	Sources include, but are not limited to, SHR1 well pad.					



SHR3 SITE SAFETY PLAN
- SITE WELL LOCATION -

- Well Pad Center
- Access Road Intersect
- Foreign Wells
- Proposed Road
- Well Pad Boundary
- 2400 Well Pad Buffer



Scale 1" = 1,000'

Projection: NAD_1927_StatePlane_West_Virginia_North_FIPS_4701
Units: Foot US



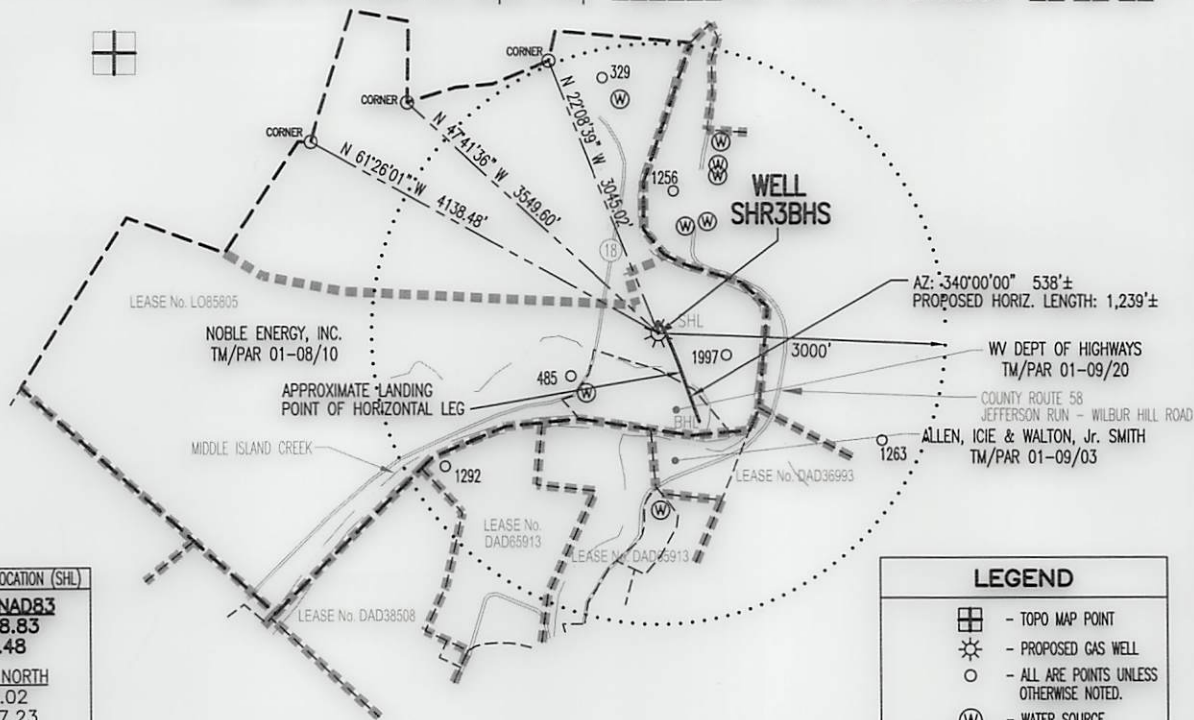
Disclaimer: All data is licensed for use by Noble Energy Inc. use only.

Date: 8/1/2013

Author: Christopher Glover



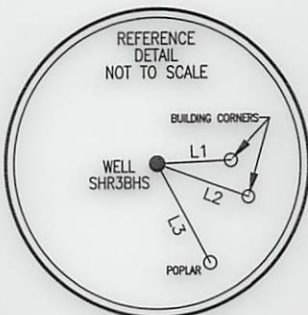
Well is located on topo map 887' feet south of Latitude: 39° 25' 00"



SURFACE HOLE LOCATION (SHL)
UTM 17-NAD83
N:4362758.83
E:514373.48
NAD27, WV NORTH
N:335746.02
E:1623337.23

APPROX. LANDING POINT
UTM 17-NAD83
N:4362638.20
E:514448.93
NAD27, WV NORTH
N:335346.04
E:1623578.22

BOTTOM HOLE LOCATION (BHL)
UTM 17-NAD83
N:4362485.11
E:514507.56
NAD27, WV NORTH
N:334840.44
E:1623762.24



LINE	BEARING	DISTANCE
L1	N 87°26'48" E	153.81'
L2	S 70°06'24" E	202.01'
L3	S 28°02'02" E	231.15'

LEGEND	
	- TOPO MAP POINT
	- PROPOSED GAS WELL
	- ALL ARE POINTS UNLESS OTHERWISE NOTED.
	- WATER SOURCE
	- SURFACE BOUNDARY
	- LEASE BOUNDARY
	- PARCEL LINES
	- WELL REFERENCE
	- PROPOSED HORIZONTAL WELL
	- ROAD
	- STREAM CENTER LINE
WELLS WITHIN 3000'	
	- EXISTING WELLS
	- PLUGGED WELLS

NOTES:

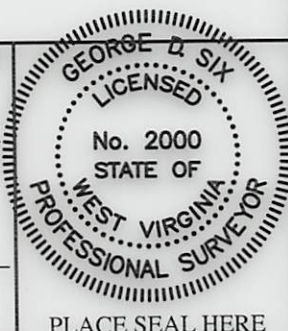
1. There are no water wells or developed springs within 250' of proposed well.
2. There are no existing buildings within 625' of proposed well.
3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
4. There are no native trout streams within 300' of proposed well.
5. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
6. It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

Blue Mountain Engineering
11023 MASON DIXON HIGHWAY
BURTON, WV 26562
PHONE: (304) 662-6486

FILE #: SHR3BHS
DRAWING #: SHR3BHS
SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/2500
PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT THOMAS 1498.81'

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed: [Signature]
R.P.E.: _____ L.L.S.: P.S. No. 2000



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
WVDEP
OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304

DATE: JULY 9, 2013
OPERATOR'S WELL #: SHR3BHS
API WELL #: 47 95 02124
STATE COUNTY PERMIT

Well Type: ☐ Oil ☐ Waste Disposal ☒ Production ☐ Deep
☒ Gas ☐ Liquid Injection ☐ Storage ☒ Shallow

WATERSHED: MIDDLE ISLAND CREEK ELEVATION: 757.13'

COUNTY/DISTRICT: TYLER COUNTY / CENTERVILLE DISTRICT QUADRANGLE: SHIRLEY, WV 7.5'

SURFACE OWNER: NOBLE ENERGY, INC. ACREAGE: 580.207±

OIL & GAS ROYALTY OWNER: SEE ATTACHED WW-6A1 ACREAGE: 579.349±

DRILL ☒ CONVERT ☐ DRILL DEEPER ☐ REDRILL ☐ FRACTURE OR STIMULATE ☐
PLUG OFF OLD FORMATION ☐ PERFORATE NEW FORMATION ☐ PLUG & ABANDON ☐
CLEAN OUT & REPLUG ☐ OTHER CHANGE ☐ (SPECIFY): _____

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6414'± TMD: 7300'±

WELL OPERATOR NOBLE ENERGY, INC. DESIGNATED AGENT STEVEN M. GREEN
Address 333 TECHNOLOGY DRIVE, SUITE 116 Address 500 VIRGINIA STREET EAST, UNITED CENTER SUITE 590
City CANNONSURG State PA Zip Code 15317 City CHARLESTON State WV Zip Code 25301